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The Need for Justification

Jeanne Peijnenburg and David Atkinson

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Abstract

Some series can go on indefinitely, others cannot, and epistemologists want to know in which class to place epistemic chains. Is it sensible or nonsensical to speak of a proposition or belief that is justified by another proposition or belief, *ad infinitum*? In large part the answer depends on what we mean by ‘justification’. Epistemologists have failed to find a definition on which everybody agrees, and some have even advised us to stop looking altogether. In spite of this, we submit a few candidate definitions. We argue that, although not giving the final word, these candidates tell us something about the possibility of infinite epistemic chains. And we show that they can short-circuit a debate about doxastic justification.

Key words: epistemic justification, evidential support, foundationalism, infinitism, probability, regress

1. Introduction

It is well known that some series can go on harmlessly, while others eventually run into trouble. As of yet we lack an independent criterion to distinguish the one from the other, but it seems clear that the nature of the *objects* in question has something to do with it. Take for example the principle $\forall x \exists y : y < x$. If x and y are integers, this principle engenders a series that can continue unproblematically, since for every integer we can always find one that is smaller. But if x and y are natural numbers then the series must come to a stop, for there is a natural number that is smaller than any other natural number. So in order to know whether or not a particular series can go on, the character of the objects is important: we need to know what is the domain over which the variables range.

Moreover, the *relation* between the objects is of importance, too. If we change the principle into $\forall x \exists y : y > x$ then the series can continue even with x and y as natural numbers, since every natural number has a successor that is larger.

What about a regress in epistemology? There the objects are beliefs or propositions (for the time being we will not distinguish between the two), and the relation is that of epistemic justification. Does it make sense to talk about a belief or a proposition that is justified by a chain of beliefs or propositions which is infinitely long?

The answer to this question depends largely on what we mean by epistemic justification. The problem however is that there are many different definitions of ‘justification’ and that there is no *communis opinio* on which is the best one. William Alston has famously claimed that a definition of ‘justification’ is not needed, and in fact not even possible (Alston 1993, 2005). Alston considers this not to be a problem, since there remain enough epistemic desiderata about which epistemologists can fruitfully

disagree. Others however hold that, without such a definition, many an important epistemological debate will turn into ‘a mere verbal dispute’ (Steup 2013). Our position lies somewhere in between. Unlike Alston we believe it is worthwhile to search for a definition of ‘justification’. If we have not yet found a definition upon which we all agree, epistemological debates might still make sense --- *pace* Steup.

In this paper we offer three candidate definitions. We stress that they are only candidates, liable to improvement. However, we do believe that they can teach us something about the coherence and the possibility of an epistemic regress. The first two candidates for a definition are presented in Section 2. We explain that they share an important property, which we dub DIG, short for the ‘Decreasing Influence of the Ground’. In Section 3 we show that, thanks to DIG, the two candidate definitions shed light on a debate between Peter Klein and Michael Bergmann about doxastic justification. Finally, in Section 4, we propose a third candidate.

2. Two Candidate Definitions and DIG

The main reason why William Alston holds that a definition of justification cannot be given is that epistemologists have failed to pick out an objective feature of beliefs about which they are disagreeing. None of the selected features turns out to be neutral with respect to material properties of justification: each somehow implies that justification is either internalistic or externalistic, either diachronic or synchronic, either transmissive or emergent, and so on. A neutral definition simply seems beyond our reach.

Alston may well have a point here, but a way to circumvent this difficulty is to focus on *logical* or *formal* properties rather than on material ones. Two logical properties in particular catch the eye: that justification is *graded* and that it is *relational*. The first property is relatively uncontroversial. It says that, unlike truth and perhaps unlike knowledge, justification allows for a more or less. The second property implies that the expression ‘proposition or belief A is justified’ is actually a short form of ‘ A is justified by B ’. If it be deemed that A is justified by itself, then A and B are the same.

Taking these two properties together, we can see that the expression that we want to define, our *definiendum*, is: ‘the extent or degree to which A is justified by B ’. For example, the proposition “A hurricane will hit the east coast” (A) is justified to a certain degree by the proposition “The ground radar system has detected such and such” (B).

If B is true, our *definiendum* is given by $P(A|B)$; if B is false, it is given by $P(A|\neg B)$ if. If, as a third possibility, B is neither true nor false but only probable, then the *definiendum* will be represented by an interpolation between $P(A|B)$ and $P(A|\neg B)$. The formula that expresses this interpolation is the rule of total probability, and it gives us our first tentative definition:

$$P(A|B) P(B) + P(A|\neg B) P(\neg B) \quad (1)$$

Clearly, if B is true, then (1) reduces to $P(A|B)$, and if B is false, it reduces to $P(A|\neg B)$.

A great advantage of (1) is that it is neutral with respect to the material character of justification. For it can accommodate various positions: that justification is internalistic, externalistic, doxastic, propositional, synchronic, diachronic, transmissive,

emergent, and so on. The reason for this is clear: (1) only stresses logical properties of ‘justification’, not material ones. Thus it alleviates the pressure created by Alston’s difficulty.

Unfortunately, our first candidate also has a drawback; in fact, it has two. The first is that it does not define ‘the extent or degree to which A is justified by B ’, but simply gives the unconditional probability of A , i.e. $P(A)$. The second is that it allows the degree to be very low, so low that we would not be inclined to say that B *justifies* A .

However, the first drawback is only apparent. For in reality there is no such thing as *the* unconditional probability of the target A . What the unconditional probability of A is depends on the justifier, in this case $P(B)$. Had the latter been different, the value of $P(A)$ would have been different too. Of course, the same applies to B itself: we can take B as our target, and then $P(B)$ depends on *its* justifier, and so on.

As to the second drawback, this is indeed a problem, but matters can be readily repaired (*cf.* Atkinson and Peijnenburg 2009, 184). We merely have to insert a threshold t , and require that the degree of justification exceeds it:

$$P(A|B) P(B) + P(A|\neg B) P(\neg B) > t \quad (2)$$

How high the threshold is in a particular case typically will depend on pragmatic considerations.

The definitions that we have examined so far share an important feature that we call DIG: the Decreasing Influence of the Ground. DIG implies that the justification that

the ground B bestows on A diminishes as B recedes from A . This can be explained as follows (see Peijnenburg and Atkinson 2013 for a fuller explanation).

Imagine that the target proposition or belief A (“A hurricane will hit the east coast”) is not *directly* justified by B (detection by ground radar system), but by some intermediate propositions. For example, A might be justified by the proposition that I heard it from a friend (X_1), which in turn is justified by the proposition that this friend read it in the newspaper (X_2), which in its turn is justified by the proposition that the newspaper got the information from press agency Reuter (X_3), and so on, until the grounding proposition B about the observation by the ground radar. This gives us a justificatory chain, in which each link, we assume, is defined in terms of our second definition.

How do we determine the degree of justification that this chain gives to A ? It seems that in order to do that we need to know many conditional probabilities: of A given X_1 , of A given $\neg X_1$, of X_1 given X_2 , of X_1 given $\neg X_2$, and so on. Now imagine that empirical research has taught us that these conditional probabilities are as follows:

$$P(A | X_1) = P(X_1 | X_2) = P(X_2 | X_3) = \dots = P(X_{n-1} | X_n) = P(X_n | B) = 0.99$$

$$P(A | \neg X_1) = P(X_1 | \neg X_2) = P(X_2 | \neg X_3) = \dots = P(X_{n-1} | \neg X_n) = P(X_n | \neg B) = 0.04$$

These numbers only serve as an example, since our argument works with *any* values of the conditional probabilities.

Knowing the conditional probabilities is however not enough to determine the degree of justification that the chain gives to A . We also have to know the probability of

B . At this stage, this probability is unconditional; since B is taken as the ground or foundation of the chain, it is not conditioned by another proposition.

Let us assume that the unconditional probability of B is .7. The justificatory degrees of A (according to our first tentative definition) are listed in the following table:

Number of X 's	1	2	5	10	50	100	∞
Justification of A	.709	.714	.726	.743	.793	.799	.8

Table 1: Justificatory degrees of A when the probability of B is 0.7

The upper row displays the numbers of propositions X . In the first entry there is one X , so we are dealing with a short finite chain containing only two links; in the fourth entry there are ten X 's, so the chain consists of eleven links, and so on. The lower row shows the corresponding values for the degree of justification of A . If the chain has two links, then the justification of A is .709, if the chain has eleven links, then the justification is .743. And when there is an infinite number of links, the justification of A converges to 0.8. Here the justification for A has reached its definitive value, relative to the numbers chosen for the conditional probabilities.

Let us now change the unconditional probability of B to 0.95, but keep the same conditional probabilities as in Table 1. The result is Table 2:

Number of X 's	1	2	5	10	50	100	∞
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Justification of A	.935	.929	.910	.885	.811	.801	.8
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Table 2: Justificatory degrees of A when the probability of B is 0.95

Two observations should be made. First, the justification for A culminates in a limiting value that is the same as in Table 1, namely of 0.8. This seems strange. How can it be that different probability values of B in the end lead to the same degree of justification for A ? Second, while the numbers in Table 1 steadily *increase* as the number of links becomes larger, those in Table 2 steadily *go down*. How can we understand that?

In both cases, the answer is provided by DIG. Together, all the links in a chain confer upon A an exact, definitive degree of justification, but DIG implies that the further away a link is from A , the less it contributes to that definitive degree. This applies first and foremost to the ground B , since of all the links B is the furthest away from A . But it also applies to the conditional probabilities $P(X_{n-1} | X_n)$ and $P(X_{n-1} | \neg X_n)$: their justificatory rôle for A also diminishes as n becomes bigger. If the chain is infinite, as in Tables 1 and 2, then B is infinitely far removed from A . Consequently, the contribution of B is nil: the probability of B might be high or might be low, that has no effect whatsoever on the final degree of justification of A . All that matters now are the conditional probabilities, and the ones close to A matter most. The reason why the numbers in Table 1 go up, while those in Table 2 go down, is precisely because in the first case the probability of the infinitely remote B is *lower* than the final justificatory degree of A , and in the second case it is *higher*.ⁱ

In the next section we will see how DIG can shed light on a debate between Klein and Bergmann.

3. Settling a debate between Klein and Bergmann

Up to this point we have not distinguished between propositional and doxastic justification: A , B and X_n could be either propositions or beliefs. It has however often been pointed out that the distinction *is* relevant when we talk about justification, especially when we discuss the possibility of infinite justificatory chains. Thus Michael Bergmann has argued that propositional justification might go on and on, but doxastic justification must always come to a stop: infinitism and doxastic justification simply seem incompatible (Bergmann 2007).

Peter Klein agrees that, unlike propositional justification, doxastic justification is always finite. He does not see this as a difficulty for infinitism, however, since the stop is merely a contextual or pragmatic matter. In Klein's view, doxastic justification is parasitic on propositional justification. In principle it can go on and on, but in practice it ends, since after all "We get tired. We have to eat. We have satisfied the enquirers. We die." (Klein 2007a, 16).

Bergmann, however, believes that Klein's position is untenable. In order to reject foundationalism, he argues, Klein must endorse the following view (Bergmann 2007, 22-23):

K1: For a belief B_j to be doxastically justified, it must be based on some other belief B_{j+1} .

He then tries to catch Klein on the horns of a dilemma by introducing:

K2: A belief B_j can be doxastically justified by being based on some other belief B_{j+1} only if B_{j+1} is itself doxastically justified.

Klein must either accept or reject K2. If he *rejects* it, then he must maintain that a belief B_j can be doxastically justified by another belief B_{j+1} even if the latter is itself unjustified. This would turn Klein into a defender of what Bergmann calls the *unjustified foundations view* --- an outlook that is not particularly Kleinian, to put it mildly. On the other hand, if Klein *accepts* K2 along with K1, then he would run the risk of becoming a skeptic. For “then he is committed to requiring for doxastic justification an infinite number of actual beliefs [...] But it seems completely clear that none of us has an infinite number of actual beliefs [...]” (ibid.)

We believe that DIG shows this dilemma to be illusory. DIG takes seriously the idea that justification comes in degrees, and it implies that there is another way to reject K2.ⁱⁱ If doxastic justification draws on propositional justification, the justification that one belief gives to another also diminishes as the distance between them increases. More precisely, a belief B_1 can be doxastically justified by a long chain of other beliefs, B_2 , B_3 , to B_n , such that:

1. each B_m is conditionally justified by B_{m+1} , where $2 \leq m \leq n-1$;

2. B_n may be justified by another belief, or may justify itself, or may be unjustified;
3. the effect of B_n on B_I becomes smaller as n becomes bigger and bigger.

In the limit that n goes to infinity, the justificatory support given by B_n to B_I vanishes completely. In that case it does not matter for the doxastic justification of B_I whether B_n is justified or not: B_I can still be doxastically justified. The choice is not between indefinitely going on and the unjustified foundations view. There is a third possibility. Recognizing that any justification that B_n gives to B_I diminishes as the distance between the two is augmented, we might decide to stop at B_n because the justificatory contribution that any further belief would bestow on B_I is deemed to be too small to be of interest.

This particular way of rejecting K2 goes unnoticed in the debate between Bergmann and Klein. Because DIG is not taken into account, one fails to realize that ‘stopping at a belief B_n ’ can have more meanings than those that have been envisioned in the debate. It need not mean ‘making an arbitrary move’, as some coherentists have claimed. Nor need it imply that B_n is taken to be unjustified or self-justified. Rather, an agent can decide to stop at a belief B_n because she realizes that, for her purposes, B_{n+1} has become *irrelevant* for the justification of B_I . She finds the degree of justification conferred upon B_I by B_2 to B_n accurate enough and feels no need to make it more accurate by taking B_{n+1} into account. For her, the justificatory contribution that B_{n+1} gives to B_I has become negligible.

Of course, when exactly a justificatory contribution is deemed to be negligible depends again on pragmatic considerations, but our two tables show that we are able to

make these considerations as precise as we wish. For they allow us to identify a point at which the rôle of B_n can be said to be small enough to be neglected.ⁱⁱⁱ

4. A third candidate

Recall our second candidate definition:

$$P(A|B) P(B) + P(A|\neg B) P(\neg B) > t \quad (2)$$

Unfortunately, this candidate has a drawback as well. It identifies ‘epistemic justification’ as ‘probabilistic or evidential support’, and this is very questionable. For it might happen that the probabilistic support is high, well beyond the threshold, while we would not say that there is justification. Conversely, there might be justification even though the probabilistic support is quite low. Qualms about the identification of justification and evidential support have been expressed on several occasions^{iv}, but Martin Smith found an especially arresting way to phrase them. (Smith 2010).

Smith compares the difference between epistemic justification and evidential support with the difference between *ceteris paribus* laws and mere statistical generalizations. The former tell us when events are *normal* or *abnormal* while the latter only imply that events are *likely* or *unlikely*. Here are two examples, both taken from Smith’s paper.

Imagine that I have bought a ticket in a fair lottery with a billion tickets. Since the lottery is fair, I will very likely lose, the chance of winning being only one billionth. If, however, against these odds I do win, this is only very *unlikely*, it is not *abnormal*. After all, someone had to win, and it might as well be me. On the other hand, if a completely healthy individual in front of me suddenly drops dead, this would be *abnormal*; it would require an explanation. My winning the lottery, however, does not require an explanation --- there is nothing to explain. And this is so even if the evidential support for the proposition “I will *not* win the lottery” ($\neg L$) is much higher than the evidential support for the proposition “The person in front of me will *not* suddenly drop dead” ($\neg D$). For $\neg D$ is *normically* supported by evidence whereas $\neg L$ is not.

The second example is inspired by a paper of Dana Nelkin (ibid. 13; Nelkin 2000, 3888-389). Suppose that the background color of my computer screen is determined by a random number generator, such that in one out of a million possible values it will be red. For the remaining 999,999 values, the color will be blue. One day I turn on my computer and without looking I go to the adjacent room. In the meantime Bruce, who is oblivious of all this, enters my computer room and *sees* that the color is blue. Let A be the proposition “The color is blue”. Both Bruce and I have evidence that supports A . My evidence, let’s call it E_1 , consists of my knowledge about the random number generator. Bruce’s evidence, E_2 , consists of his seeing blue. Neither E_1 nor E_2 implies the truth of A . I cannot be sure that the color is blue, and neither can Bruce. After all, he could be hallucinating, or be struck by color blindness. Smith argues that Bruce is justified in believing A and I am not, even if $P(A|E_1) > P(A|E_2)$. For Bruce’s belief in A is a candidate for real knowledge, whereas mine will never be. If there is a power failure after

Bruce has entered my computer room, he can always claim that he *knows* the color was blue, but I, in the other room, will never be justified in making that claim.

We think these examples are intuitively very convincing, and they indicate that epistemic justification is not the same as probabilistic or evidential support.^v Clearly something has to be added to probabilistic support to turn it into justification. This insight takes us to our third and final candidate for a definition of justification. It consists of the second candidate plus something else:

$$[P(A|B) P(B) + P(A|\neg B) P(\neg B) > t] + \text{something else} \quad (3)$$

What to fill in for ‘something else’? According to Smith it is “normalcy”, the property that the support is “normic”. Unlike mere probabilistic support, normic support “is closed under multi-premise deductive consequence” (ibid., 26). If I am justified in *A* and justified in *B*, then I am justified in *A&B*. But if I have high evidential support for *A* and high evidential support for *B*, it does not follow that *A&B* is highly supported.^{vi}

No matter what exactly we fill in for ‘something else’, our third candidate states that evidential support as such does not produce justification. If there is justification, then there is evidential support, but not the other way around. Since (3) implies that justification is a constraint on evidential support, the latter is a necessary but not a sufficient condition for justification.

However, we have seen in Section 2 that evidential support is sufficient for DIG. From this it follows that justification, too, suffices for DIG, no matter what exactly justification turns out to be. For infinitists this is good news. It implies that the very idea

of a proposition or belief being justified by an infinite chain is not incoherent, thus taking the sting out of some major conceptual objections against infinitism. For foundationalists the news is neither good nor bad; it merely means that only those versions of foundationalism are viable that take DIG on board.

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ⁱ This 'washing out' of the influence of *B*, as the number of links in the chain increases indefinitely, should not be confused with the familiar washing out of the influence of the prior probability during repeated Bayesian updatings, under the influence of new 'incoming information'. These are completely different effects.

ⁱⁱ Klein also argues that "rejecting K2 does not entail endorsing an unjustified foundationalist view" (Klein 2007b, 28). His argument is somewhat different from ours, but we believe that our DIG-based reasoning can capture his most important intuitions.

ⁱⁱⁱ Cf. Klein: "The *infinitist* will take the belief that *p* to be doxastically justified for S just in case S has engaged in providing 'enough' reasons along the parth of endless reasons. ... How far forward ... S need go seems to me a matter of the pragmatic features of the epistemic context" (Klein 2007a, 10). See also Nicholas Rescher: "in any given context of deliberation the regress of reasons ultimately runs out into 'perfectly clear' considerations which are (contextually) so plain that there just is no point in going further. ... Enough is enough." (Rescher 2010, 47).

^{iv} Aikin 2011, Chapter 3; Klein 1999, 312; Klein 2003, 722; Shogenji 2012.

^v Note, however, that we have only examples to rely on. Smith explicitly refrains from answering the question how to distinguish the 'genuinely abnormal' from the 'merely unlikely': "The question ... is a somewhat delicate one, and I don't propose to investigate

further here.” (ibid., 22). A conclusive answer would indeed be no small accomplishment, as it would bring us close to solving Hume’s problem.

^{vi} Tomoji Shogenji also argued that justification is closed under deduction, in contradistinction to mere probabilistic support. He proposes a measure for justification which assumes that, if A is justified and B is justified, then $A \& B$ is justified on condition that A and B are independent (Shogenji 2012).